
RESPONSES TO COMMENTS ON THE DRAFT 2010 SFER – VOLUME I, CHAPTER 11

Bradley L. Jones, David H. Anderson, Stephen G. Bousquin,
Michael D. Cheek, David J. Colangelo, Steffany Gornak,
Joseph W. Koebel Jr., and Jose Valdes

Level of Panel Review: Technical (primary); Integrative (secondary)

Reviewers: J. Burkholder (AA), J. Burger (A)

Comment #1: *Are the methods used by the various monitoring programs intercalibrated and, if not, are there plans to do so? And, are there plans to compile all of the data and data sources? (lines 552-578)*

Response #1: For the monitoring discussed in this section, the SFWMD does not conduct side-by-side or split sampling with other agencies that collect water quality samples in the same water bodies. However, there is movement toward more coordination of monitoring with other agencies. For example, the draft Kissimmee Chain of Lakes Long-Term Management Plan describes a conceptual plan to coordinate future water quality sampling, data management, and data analysis among agencies. With regard to data compilation, a comprehensive analysis of Kissimmee Basin data was done recently by the FDEP. It examined data from all available sources for its 2006 water quality assessment of the Kissimmee Basin. The SFWMD supplied over half of the data used in that assessment. The FDEP conducts these assessments on a five-year cycle. The next assessment is scheduled for 2010. Discussion of the FDEP assessments was added to this section, but no statements on further coordination of monitoring were added, as no commitments have been made. (B. Jones)

Comment #2: *When is the next comprehensive update planned? (lines 685-692)*

Response #2: KRREP Phase I data collection is staggered to maximize available resources. New data become available in different years for different evaluation studies. We view our ongoing annual SFER updates as effectively cumulative in the sense that the most recent response updates from individual studies are made available to readers as they become available. Using Table 11-2, readers can determine the most recent previous update for all KRREP Phase I restoration expectations and several other Phase I studies. We have no immediate plans for a comprehensive update of KRREP data in a single SFER chapter because it would involve presenting information that is redundant with previously-published chapters. In 2010 we are publishing a special issue of the journal *Restoration Ecology*. The included papers will comprise a comprehensive summary of Phase I responses to date in a more detailed form than is feasible in the SFER chapters. (S. Bousquin)

Comment #3: *Some performance measures have not been evaluated since 2005, such as river bed deposits, sand bar formation, periphyton, macroinvertebrate drift composition, shore birds, and threatened and endangered species. When are the next evaluations planned? (Table 11-2, p.11-24)*

Response #3: Table 11-2 has been modified so that it is clearer when a formal restoration expectation does not exist for the studies listed in the table. For resource allocation purposes, data collection priority is given to studies for which restoration expectations were developed. In some cases, for various reasons studies for which expectations were developed are not collecting data during the interim period; data collection may be planned for after the revised water regulation schedule is in place. More detailed responses from individual study leads about their evaluation plans are presented below. (S. Bousquin)

River bed deposits: Changes observed in the Phase I area post-construction survey exceeded the restoration expectation. Additional evaluation in the Phase I area is not planned at this time because significant additional change in the metrics involved is not anticipated. Sediment characteristics in the Phase II/III area are being examined in more detail. Baseline data are being collected in the Phase II/III restoration area that may be used to evaluate this expectation following completion of that phase and restoration of flow. Methodological differences between the two studies may prohibit formal evaluation of the expectation as it was originally formulated, but similar metrics are being used in the Phase II/III study and results will be reported as with all KRREP studies. (J. Valdes/D. Anderson)

Sand bar formation: The initial assessment in the Phase I area showed a large increase in the number of meander bends with active point bar formation. A component of the Phase II/III geomorphology study is quantifying changes in sand bar area over all phases of the project area. This effort may allow additional evaluation of the sandbar expectation or evaluation of similar metrics. (J. Valdes/D. Anderson)

Periphyton: There is no formal restoration expectation for periphyton. The study therefore has lower priority during the interim period than studies designed to evaluate formal restoration expectations. Periphyton response will be re-examined after all phases of construction have been completed and the headwaters water regulation schedule has been in place for several years. (D. Colangelo)

Aquatic macroinvertebrate drift: Table 11-2 has been corrected. Baseline data on aquatic macroinvertebrate drift composition were presented in the 2005 SFER, and subsequently, these data were also briefly summarized in the 2006 SFER. No attempt has yet been made to evaluate aquatic macroinvertebrate drift composition under the interim regulation schedule in the Phase I construction area. Clearly, macroinvertebrate drift is a key functional attribute of healthy river systems. Drift composition will provide useful data on river channel macroinvertebrate community structure and food availability. However, time and manpower constraints have prohibited response evaluations of this component to date. Plans to evaluate macroinvertebrate drift response to reestablished flow will be implemented following establishment of the revised headwaters regulation schedule in approximately 2013. If deemed appropriate, a small-scale response study may be implemented in early 2010 with results presented in next year's SFER. (J. Koebel)

Shore birds and Threatened and Endangered Species: No restoration expectations or performance measures were adopted for shorebirds or threatened and endangered species, so they are not regularly monitored by District staff as part of the restoration evaluation program per se. However, we do monitor the state and federally listed species of wading birds through the aerial surveys and they are reported each year in the SFER, although not by individual species. Federally listed species, which include wood stork, snail kite,

and crested caracara, are monitored by District staff (wood stork) and the U.S. Fish and Wildlife Service or their partner agency contractors (snail kite and crested caracara). Their data are available from other sources and are not typically reported in the annual SFER.

No shorebird surveys have been conducted since the 2005 report because, following reevaluation of the study methods, methods were deemed insufficient to accurately survey shorebird response to restoration (see SFER 2005). No better methodology was subsequently developed and project priority was given to passerine point counts and secretive marsh bird surveys, which were determined to yield better information on avian response to restoration for a similar amount of work as shorebird surveys.

Threatened and endangered species monitoring surveys are not conducted by District staff except for wood stork. The bald eagle is no longer a listed species, snail kites are rarely if ever observed along the Kissimmee, and crested caracaras are currently being monitored by a USACE contractor within the Phase IVB area and will be reported on in next year's SFER if deemed appropriate. (M. Cheek)

Comment #4: *Regarding the DO performance measures, it would be very helpful to have a metric for minimum daily DO. It would seem, for example, that component 4 of Expectation 8 (DO concentration within 1 m of the channel bottom will be > 1 mg/L for more than 50% of the time annually) would poorly protect sessile bottom-dwelling aquatic life. Are there plans to install continuous monitors on the reference streams to obtain this important information? (p. 11-35)*

Response #4: We agree that a more rigorous metric for daily DO could be developed and there is a mechanism in place to allow for improvement of our performance measures as our knowledge base grows. The reviewer is correct that the SFWMD would need to collect continuous DO data from the reference streams in order to develop a more stringent metric for minimum daily DO. We currently do not have funding in place to gather these data. Priority has been given to collecting continuous data for the Kissimmee River control and impact areas. We will take this comment into consideration when budgeting for FY2011. (D. Colangelo)

Comment #5: *Why was the mean daytime concentration of DO in the river channel at 0.5-1.0 m-depth expected to increase from < 2 mg/L to above 3 mg/L (3-6 mg/L) during the wet season, when the average reference stream concentration in that season was 4.2 mg/L? (lines 885-886)*

Response #5: As stated in response to previous year's comments on this section, the expected wet season DO target was chosen to include the range of daytime DO concentrations observed in the reference streams. These targets could be improved if more reference data are collected. (D. Colangelo)

Comment #6: *Was the increase in wading birds similar to that experienced by the Everglades system overall? Determining whether foraging birds are using the restoration areas more strongly than others would also prove useful for management.*

Response #6: There was actually a decrease in wading bird numbers in the Phases I and IVA areas since 2008. This was likely the result of the attraction of birds to the Phase IVB construction area because of more appropriate water levels in a newly flooded area. Data from Everglades National Park overflights suggested a 17% increase over last year (2008).

The current study design compares the unrestored channelized system with the restored portion of the river, but does not include any isolated wetlands or sloughs outside of the 100 year floodline where birds may be foraging preferentially during certain times of the year. This would be valuable information, but would require large-scale tracking of wading birds, which can travel over huge distances in short periods, especially during the non-breeding season. This work would be beyond the scope of our current restoration monitoring mandate. (M. Cheek)

Comment #7: *Was the information about nonindigenous species that do not occur in the Kissimmee Basin used to revise Appendix 9-1? (lines 1209-1212)* Comment

Response #7: Appendix 9-1 identifies invasive species occurring in the Kissimmee Basin. For Chapter 11's invasive species section, the list was reduced to include only those species known to occur in the Kissimmee River and floodplain in the Lower Kissimmee Basin. (S. Bousquin)

Comment #8: *Water hyacinth and water lettuce seem to be very high-priority problem species since they have the potential to seriously disrupt the natural vegetation in the Kissimmee watershed. Are more aggressive control strategies being considered?*

Response #8: Water hyacinth and water lettuce are indeed very high-priority species for the District. The maintenance control approach described in the chapter, which has the goal of maintenance of tolerable, low levels of targeted species, is the District's current strategy for these species. This goal has been achieved and is being maintained by the District's Vegetation Management Division through an ongoing spraying program. This program has been successful in preventing these species from having significant impacts on native plant communities. Complete eradication of these species in Florida waterways is neither cost-effective nor feasible given current technology. (S. Bousquin)

Comment #9: *Are there plans to develop a control strategy for Asian clams, and to explore control options for Cuban treefrogs, and island apple snails? (pp. 11-58, 11-60, 11-61)*

Response #9: See the special section at the end of the Chapter 11 responses, which addresses several similar comments on invasive animals. (S. Bousquin)

Comment #10: *The section on birds examines mainly nesting wading birds and waterfowl. It might be useful to do a more targeted census of birds overall to determine the importance of the region, particularly for foraging birds. While understanding what wading birds are nesting where, it is important to evaluate nesting success, given that mercury levels are high generally (see Chapter 3B). Further, cattle egrets are an invasive species, and some consideration needs to be given to potential competition between them and native wading birds. The waterfowl densities*

section is a good addition, but again it would profit from some more rigorous census data. Some discussion of the lack of waterfowl diversity would improve the section, and any restoration methods aimed at increasing waterfowl diversity should be mentioned. More recent references for this subsection would also be helpful.

Response #10: The first portion of the bird section addresses nesting wading birds (excluding waterfowl), and the second section does address foraging wading bird and waterfowl densities. Nesting success is not currently monitored as the numbers of nesting aquatic wading birds are extremely low for the size of the project area and a study would require the disturbance (and potential failure) of any nests that do form apart from cattle egret nests. Nest success monitoring also requires regular weekly field visits to remote locations which is logistically infeasible with the current staff and time available. We will attempt to initiate nest success surveys once we have a larger number of aquatic wading birds nesting regularly on the floodplain.

While cattle egrets are known to compete for nesting resources (e.g., nesting material, suitable nesting substrate, nesting location, etc.) with aquatic species of wading birds in more northern latitudes (Burger 1978), competition does not seem to be an issue in Florida as cattle egrets typically nest later than the native species. Also, nesting resources do not appear to be a limiting factor in the nesting effort of most species along the Kissimmee because of the large size of the project area and availability of apparently suitable nesting locations and materials. Prey availability is probably the most limiting factor right now for aquatic species and there is little overlap in the diets of cattle egrets and most aquatic species.

We consider the current aerial waterfowl surveys adequate to capture waterfowl density and diversity across the floodplain. Additional census information on breeding mottled ducks or wood ducks may be valuable, but again staff and time limitations currently prohibit such a species-specific study.

We do not understand exactly why the waterfowl diversity has failed to reach the restoration expectation thus far, except for the fact that the hydrology is not currently managed to optimize the greatest diversity of wetland habitats as it will be under the Headwater Revitalization Schedule. We are currently initiating (2009) a waterfowl and wading bird prey availability study using throw trapping to begin to understand what is currently available to waterfowl within the restored section and how our water management may be affecting prey production during certain times of the year. Management/restoration actions may be altered in the future to enhance the suitability of wetland habitats for waterfowl if it is determined that the current and proposed restoration/management actions are limiting the available prey base. (M. Cheek)

Comment #11 (Part A): *An excellent new subsection added this year assessed the potential threat to restoration efforts from nonindigenous, invasive plant and animal species that occur in the Kissimmee River and floodplain within the KRRP area of the lower basin, including 17 plants and 6 animals. Information about each species includes areas of occurrence within the Kissimmee watershed, effects of the construction activities, previous or ongoing treatment actions, prognosis, and recommendations.*

This subsection should add an introductory paragraph that includes information about the number of plant and animal species considered. It should also add a summary paragraph about the species with the most potential for threatening or impeding restoration efforts.

Response #11 (Part A): Introductory/Summary material has been added to the invasive species section. (S. Bousquin)

Comment #11 (Part B): *There seemed to be more information on problematic invasive plant species than for invasive animals, suggesting that targeted studies might be considered before some of the animal species become completely unmanageable (as likely is already the case, for example, for Asian clams).*

Response #11 (Part B): See special section at the end of the Chapter 11 responses, which addresses several similar comments on invasive animals. (S. Bousquin)

Comment #12: *Summary - is well-written in general, with both historical information and present monitoring and research activities. However, in reading this section, the main results, findings, conclusions, and recommendations are not easily discerned. It might be clearer if the main findings from the past were written in bullet form for easy access. In reading this section, it is not clear what the main results, findings, conclusions, and recommendations are.*

Response #12: A bulleted list of accomplishments and findings under the Kissimmee Watershed Program has been added to the end of the Summary. (B. Jones)

Comment #13: *Lines 91-100 - add summary information about the number of invasive plant and animal species evaluated, and those which are considered to pose the greatest threat.*

Response #13: Summary information on evaluated species was added to the Summary section. (S. Bousquin)

Comment #14: *Line 223 - please add how much land was acquired.*

Response #14: Acres of land acquired in the Upper and Lower Basins have been added to the text. (S. Bousquin)

Comment #15: *Lines 384-385 - add explanation about which fish and wildlife have been evaluated as important for use in identifying the eight reservation water bodies, and the basis (how the needs of these fish and wildlife species are being defined).*

Response #15: A general description of the major groups of fish and wildlife considered in the water reservation has been added to the paragraph on lines 400-411. This paragraph already contains a general description of hydrologic requirements. The draft technical document (cited in the text) contains about 70 pages on fish and wildlife, hydrologic requirements, and the performance measures. For additional detail, we refer the panel to that document. (D. Anderson)

Comment #16: *Lines 449-457 - it would be helpful to add a map of the area now covered by the Lake Okeechobee Water Protection Plan (LOWPP).*

Response #16: A reference to a map in Chapter 10 (Figure 10-1) has been added to the text. (B. Jones)

Comment #17: *Lines 479-481 - add explanation as to where the municipal wastewater treatment effluents have been diverted.*

Response #17: The text now explains that wastewater effluents were diverted to reclamation and irrigation facilities, rapid infiltration basins, and land spreading operations. (B. Jones)

Comment #18: *Lines 494-542 - the TMDL discussion is useful, but it needs a context of what pollutants are being considered.*

Response #18: Much of the content here is intended to explain the process of TMDL and BMAP development in general terms, but as stated near the beginning of this section (Lines 492-493), the TMDLs and BMAPs are generally concerned with nutrients. Some additions have been made to Lines 508-514 to clarify that the parameters under discussion are nutrients and dissolved oxygen. (B. Jones)

Comment #19: *Lines 537-539 - clarify whether these BMPs are voluntary versus mandatory.*

Response #19: Strictly speaking, the statute says that agricultural landowners shall implement BMPs or comply with the District's Works of the District program by conducting monitoring. Thus, agricultural landowners can implement BMPs or monitor to demonstrate that the water from their property will meet a specified water quality target so they do not need to implement BMPs. For non-agricultural landowners, BMPs are required. Therefore, BMPs are mandatory unless it is an agricultural landowner who monitors to demonstrate that they do not need to implement BMPs. A statement to this effect has been added at Line 539. (B. Jones and S. Gornak)

Comment #20: *Line 561 - include the year.*

Response #20: The year that LOWA sampling began, which was 2004, has been added. (B. Jones)

Comment #21: *Lines 561-565 - please add a map of the sampling stations and describe the sampling frequency. And, a data summary (graph or table) of these TP data should also be added.*

Response #21: The text now refers to Figure 10-6 in Chapter 10, which shows the LOWA sampling stations along with other sampling stations in the Lake Okeechobee watershed. We agree that a summary of TP data from the LOWA stations would be a useful addition, but time is not available to summarize the data for this SFER. This task will be considered for next year's report. (B. Jones)

Comment #22: *p.11-22 - the stations PC61, PC11, and KRBN should be shown on a map.*

Response #22: An additional map has been created to show the locations of the Pool C monitoring sites, and has been inserted after Figure 11-8. (D. Anderson)

Comment #23: Lines 724-726, 769-781, 821-828 - please add a map of these stations.

Response #23: An additional map has been created to show the locations of the Pool C monitoring sites, and has been inserted after Figure 11-8. (D. Anderson)

Comment #24: *Line 845 - this subsection needs to also address mercury and sulfur, as it is clearly a problem, and there are references in Chapter 3B.*

Response #24: Last year's report included an extensive presentation of mercury monitoring in the Kissimmee Basin. Those results has been updated and moved to Chapter 3B where mercury monitoring from other areas of the District is discussed. This was done because mercury contamination is a regional issue, and staff decided that mercury monitoring in the Kissimmee Basin should be integrated with other mercury studies in the District. A statement to this effect has been added to the Water Quality section. Although some monitoring of sulfate has been done in the Kissimmee Basin, there is currently no directed effort to investigate sulfur concentrations in the basin. (B. Jones)

Comment #25: *pp.11-32 to 11-34 - the reference condition is clearly explained; please clearly describe the baseline.*

Response #25: In an attempt to condense Chapter 11, much of the background information presented in previous updates was left out. Information describing the baseline condition will be added back to this update per the reviewers' recommendation. (D. Colangelo)

Comment #26: *pp. 11-35 to 11-36 - Although the progress on DO conditions is encouraging, in WY2009 mean daily water-column DO [near the surface? - as indicated in the legend for Figures 11-16, 11-17] was > 2 mg/L 80% of the time, and minimum daily water-column DO was > 2 mg/L 77% of the time. Therefore, for about 20% of the time, minimum daily water-column DO*

was approaching anoxia, which can kill sensitive aquatic life. Please add explanation as to how these conditions would be expected to affect aquatic life in the Kissimmee River.

Response #26: Dissolved oxygen sags are common and likely a natural occurrence in south Florida streams during the wet season. Sometimes these events cause localized fish kills. Most of the time, fish and other mobile aquatic organisms are able to find refugia with slightly higher DO concentrations. On the Kissimmee River, DO sags often occur within the river channel while the floodplain of the river is inundated. We have observed that DO concentrations on the floodplain tend to be greater than river channel concentrations during these episodes and we hypothesize that fish and other aquatic organisms use the floodplain as a refuge from low DO and high flow velocities. This rationale will be added to the chapter. (D. Colangelo)

Comment #27: *Line 955 - explain the variation from weekly to monthly sampling frequency.*

Response #27: Over the course of 35 years of monitoring, sampling frequencies have ranged from weekly to monthly, but samples were usually taken every two weeks. Clarification has been added to Line 955. (B. Jones)

Comment #28: *Line 1044 - additionally, migrants will find suitable habitat if it is available. More recent references should be added to this subsection.*

Response #28: An additional reference was added at Line 1045: Melvin, S., D. Gawlik, and T. Scharff. 1999. Long-term movement patterns for seven species of wading birds. *Waterbirds* 22(3): 411-416. (M. Cheek)

Comment #29: *Line 1080 - it might be useful to study bird foraging use in the restoration areas themselves, rather than using flight lines.*

Response #29: Radio tagging birds would be the best way to track their movements to and from the colony to see if they are utilizing the restored portion of the river, or following birds to and from the colony by air or ground. However, since these colonies were some of the first to form near the floodplain in recent years, and the colonies were located on inaccessible private property, flight-line counts were used. We may attempt to track birds to and from the colony in the future if they form in areas close to the floodplain with ground access. (M. Cheek)

Comment #30: *Line 1098 - please clarify when the adults abandoned their nests, and whether any of the native species fledged young.*

Response #30: As mentioned in Response #29, the colonies were located on private property (Lykes Brothers, Inc. ranch) where we were denied access and therefore could not follow up on nest success or even determine exactly when they abandoned their nests. (M. Cheek)

Comment #31: *Line 1238 - please provide information about how much area was treated.*

Response #31: Area of Brazilian pepper treated in 2008-2009 (1,514 acres) has been added to the text. (S. Bousquin)

Comment #32: *Line 1424 vs. the rest of this subsection - please add the category information for the other invasive nonindigenous species, if available.*

Response #32: Categories have added for those species that are listed by FLEPPC. (S. Bousquin)

Comment #33: *Lines 1423-1429 - explain whether there is a possibility of increasing control efforts during or immediately after frosts.*

Response #33: For systemic herbicides to be fully effective, targeted plants must be actively photosynthesizing so that they will absorb and translocate the toxin. Application during a period of dormancy or when the plant is without leaves would not have the desired effect. No changes made. (S. Bousquin)

Comment #34: Lines 1496-1498 - writing seems overly optimistic; please include supporting evidence.

Response #34: The hypothesis has been removed. (S. Bousquin)

Comment #35: *Line 1526 - it is troubling that there seems to be no active control program for this species, which has the potential to be really disruptive. Additional consideration should be brought to bear to develop strategies for controlling this species.*

Response #35: See the special section at the end of the Chapter 11 responses, which addresses several similar comments on invasive animals. (S. Bousquin)

Comment #36: *Line 1543 - again, as for the above comment, some of the invasive animal species mentioned in this subsection seem to be good targets for some studies to determine their specific effects on native species. Monitoring alone does not seem to be enough to address such species.*

Response #36: See the special section at the end of the Chapter 11 responses, which addresses several similar comments on invasive animals. (S. Bousquin)

Comment #37: *Line 1582 - this species has the potential for major disruptions, and given the problem of frogs generally, some additional control measures should be considered and investigated.*

Response #37: See the special section at the end of the Chapter 11 responses, which addresses several similar comments on invasive animals. (S. Bousquin)

Comment #38: *Line 1742 - the goals of this program are excellent, but the timing for these activities should be indicated if possible.*

Response #38: Timing will be added. (D. Colangelo)

Comment #39: *Lines 1034-1037 should mention p.11-61.*

Response #39: Line 1035 should not have referred to the Phase II/III Hydrology Network section on p. 11-61. That reference has been deleted. (B. Jones)

Comment #40: *Line 50 - add information about the results of the review.*

Response #40: The general conclusion of the peer-review panel has been inserted in line 50. (D. Anderson)

Comment #41: *Lines 184-185 - please direct readers to the reference or website where this Plan can be found.*

Response #41: We have added a second reference to USACE (1996) in the referenced paragraph, and a web link has been added in the Literature Cited section. The document can be viewed at this link: [USACE, 1996](#). (S. Bousquin)

Comment #42: *Line 310 - please more clearly define the role of the KWP in respect to other agencies.*

Response #42: There is substantial information on the roles of the District, the Kissimmee Watershed Program, and other agencies in the various subsections of the *Cross-Watershed Activities* section, including the subsections “Water Management, Operations, and Coordination”, “Kissimmee Basin Water Reservations”, and “Watershed Water Quality”, as well as in other parts of the chapter (e.g., “Invasive Species”). No changes were made. (S. Bousquin)

Comment #43: Editorial Changes –

General comment - please add Weir 1 (line 798) to a map

Line 311 - subsection should be titled, “Water Management, Operations, and Coordination”.

Lines 355-361 - metric and English units should be given in lines 355-361, as they are in Lines 212-222.

Line 455 - ...currently underway...

Line 521 - ...probable that some...

Figure 11-11 - other than the station designations, the labels are much too small; please enlarge.

Line 1080 - ...data include Lake...

Line 1203 - ...Lower Kissimmee Basin (Figure 11-3A)....

Response #43: Weir 1 is shown on a new map of Pool C monitoring sites that was inserted after Figure 11-8. Other changes were made as suggested. (D. Anderson, B. Jones)

COMBINED RESPONSE TO COMMENTS ON INVASIVE ANIMALS:

We respond to several similar panel comments on invasive animals below.

Comment #9: *Are there plans to develop a control strategy for Asian clams, and to explore control options for Cuban treefrogs, and island apple snails? (pp. 11-58, 11-60, 11-61)*

Comment #11 (Part B): *There seemed to be more information on problematic invasive plant species than for invasive animals, suggesting that targeted studies might be considered before some of the animal species become completely unmanageable (as likely is already the case, for example, for Asian clams).*

Comment #35: *Line 1526 - it is troubling that there seems to be no active control program for this species [Asian clam], which has the potential to be really disruptive. Additional consideration should be brought to bear to develop strategies for controlling this species.*

Comment #36: *Line 1543 [brown hoplo and vermiculated sailfin catfish] - again, as for the above comment, some of the invasive animal species mentioned in this subsection seem to be good targets for some studies to determine their specific effects on native species. Monitoring alone does not seem to be enough to address such species.*

Comment #37: *Line 1582 - this species [Cuban treefrog] has the potential for major disruptions, and given the problem of frogs generally, some additional control measures should be considered and investigated.*

Response: The District shares the panel’s concerns about problematic invasive fauna for which control programs are not currently in place, specifically brown hoplo, vermiculated catfish, island apple snail, Asian clam, and Cuban treefrog. These species can potentially cause problems for wetland restoration, but effective methods of control in large natural systems do not currently exist for these species.

The District has a robust vegetation management program, providing operational leadership on sovereign lands and waters within District boundaries. However, with respect to animal management, the Florida Fish and Wildlife Conservation Commission (FFWCC) is the lead state

agency, and on federal lands, the U.S. Fish and Wildlife Service (USFWS). The District serves a support role for both agencies on District lands. For example, the District has provided assistance on programs targeting the Gambian pouch rat in the Florida Keys, purple swamphen in the STAs and WCAs, sacred ibis, and large constrictors in the Everglades, among others.

Other than feral hog management on District lands and a limited Burmese python management effort in the WCAs, the District does not directly manage any animal species. We are not aware that any agency in Florida actively manages established invasive fish populations in the wild.

The District and its partner agencies continue to seek the most current information on prevention and control methods by interacting with managers and researchers in the field of invasive species management. This is done through participation in groups like the Florida Exotic Pest Plant Council (FLEPPC), Everglades Cooperative Invasive Species Management Area (ECISMA), the Florida Invasive Animals Task Team (FIATT), and the South Florida Ecosystem Restoration Task Force, whose activities include prioritization of invasive species of concern and dissemination of information on control methods; as well as representation at regional and national conferences such as the Everglades Invasive Species Summit, Greater Everglades Ecosystem Restoration (GEER) conference, the Society of Wetland Scientists (SWS), the Society for Ecological Restoration (SER), the North American Benthological Society (NABS), and the Ecological Society of America (ESA).

Regarding tracking of invasive animal species in the Kissimmee River Restoration project area, the District's Kissimmee River Restoration Evaluation Program (KRREP) includes faunal monitoring components which provide data used to evaluate trends in animal populations, including invasive fish, herpetofauna, and invertebrates. Indications of a trend of increase in the abundance of a species of concern can be elevated to the appropriate agencies for development of a coordinated strategy. (S. Bousquin)